

Infant Radiant Warmer 600W

Operating Instructions



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Introduction

Operator's Responsibility for Patient Safety

For correct and effective use of the product and in order to avoid hazards it is mandatory to carefully read and to observe all portions of this manual.

The design of the equipment, the accompanying literature, and the labeling on the equipment take into consideration that the purchase and use of the equipment are restricted to trained professionals, and that certain inherent characteristics of the equipment are known to the trained operator. Instructions, warnings, and caution statements are limited, therefore, largely to the specifics of the Dräger design. This publication excludes references to various hazards which are obvious to a medical professional and operator of this equipment, to the consequences of product misuse, and to potentially adverse effects in patients with abnormal conditions. Product modification or misuse can be dangerous. Dräger, Inc. disclaims all liability for the consequences of product alterations or modifications, as well as for the consequences which might result from the combination of this product with other products whether supplied by Dräger or by other manufacturers if such a combination is not endorsed by Dräger, Inc..

The operators of the radiant warmer system must recognize their responsibility for choosing appropriate safety monitoring that supplies adequate information on equipment performance and patient condition. Patient safety may be achieved through a wide variety of different means ranging from electronic surveillance of equipment performance and patient condition to simple, direct observation of clinical signs. The responsibility for the selection of the best level of patient temperature monitoring lies solely with the equipment operator. (See also page 13, "Medical Attention").

Limitation of Liability

Dräger, Inc.'s liability, whether arising out of or related to manufacture and sale of the goods, their installation, demonstration, sales representation, use, performance, or otherwise, including any liability based upon Dräger, Inc.'s Product Warranty, is subject to and limited to the exclusive terms and conditions as set forth, whether based upon breach of warranty or any other cause of action whatsoever, regardless of any fault attributable to Dräger, Inc. and regardless of the form of action (including, without limitation, breach of warranty, negligence, strict liability, or otherwise).

THE STATED EXPRESSED WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR NONINFRINGEMENT.

Dräger, Inc. shall not be liable for, nor shall buyer be entitled to recover any special incidental, or consequential damages or for any liability incurred by buyer to any third party in any way arising out of or relating to the goods.

Warranty

All Dräger products are guaranteed to be free of defects for a period of one year from date of delivery. The following are exceptions to this warranty:

1. The defect shall be a result of workmanship or material. Defects caused by misuse, mishandling, tampering, or by modifications not authorized by Dräger, Inc. or its representatives are not covered.
2. Rubber and plastic components and materials are warranted to be free of defects at time of delivery.

Any product which proves to be defective in workmanship or material will be replaced, credited, or repaired with Dräger, Inc. holding the option. Dräger, Inc. is not responsible for deterioration, wear, or abuse. In any case, Dräger, Inc. will not be liable beyond the original selling price.

Application of this warranty is subject to the following conditions:

1. Dräger, Inc. or its authorized representative must be promptly notified, in writing, upon detection of the defective material or equipment.
2. Defective material or equipment must be returned, shipping prepaid, to Dräger or its authorized representative.
3. Examination by Dräger, Inc. or its authorized representative must confirm that the defect is covered by the terms of this warranty.
4. Notification in writing, of defective material or equipment must be received by Dräger, Inc. or its authorized representative no later than two (2) weeks following expiration of this warranty.

In order to assure complete protection under this warranty, the Customer Registration Card and/or Periodic Manufacturer's Service Record (if applicable) must be returned to Dräger within ten (10) days of receipt of the equipment.

The above is the sole warranty provided by Dräger, Inc. No other warranty expressed or implied is intended. Representatives of Dräger are not authorized to modify the terms of this warranty.

Dräger, Inc., Chantilly, VA

Definitions

WARNING !

A **WARNING** statement refers to conditions with a possibility of personal injury if disregarded.

CAUTION !

A **CAUTION** statement designates the possibility of damage to equipment if disregarded.

NOTE: A **NOTE** provides additional information intended to avoid inconveniences during operation.

Inspection = examination of actual condition

Service = measures to maintain specified condition

Repair = measures to restore specified condition

Maintenance = inspection, service, and repair, where necessary

Preventive Maintenance = Maintenance measures at regular intervals

Typing conventions in this manual

Controls are designated by their respective labeling enclosed in » «, e. g:

»Man«

Display readings are printed in bold, e. g:

Err

General WARNINGS and CAUTIONS

WARNING !

Strictly follow this Operator's Instruction Manual

Any use of the product requires full understanding and strict observation of all portions of these instructions. The equipment is only to be used for the purpose specified under "Intended Use" (see page 13) and in conjunction with appropriate patient temperature monitoring (see page 6). Observe all **WARNINGS** and **CAUTIONS** as rendered throughout this manual and on labels on the equipment.

WARNING !

DANGER, risk of explosion if used in the presence of flammable anesthetics.

This device is neither approved nor certified for use in areas where combustible or explosive gas mixtures likely.

WARNING !

This device is to be used only in rooms with line power installations complying with national safety standards for hospital patient rooms. (e. g., IEC 601.1, "Safety of Medical Equipment).

To maintain grounding integrity, connect only to a "hospital grade" receptacle. Always disconnect supply before servicing.

WARNING !

Whenever a patient is treated with a radiant warmer, constant attention by qualified medical staff is required in order to provide immediate corrective action in case of a malfunction.

The operator shall not rely solely on the built-in temperature monitoring of the radiant warmer and must always assume full responsibility for proper patient temperature in all situations.

WARNING !

Do not use cellular phones within 33 feet (10 m) of the equipment.

Wireless phones may cause malfunction in electromedical equipment.

CAUTION !

Restriction of Distribution

Federal Law and Regulations in the United States and Canada restrict this device to sale by or on the order of a physician.

CAUTION !

Traceability

Federal Law in the United States requires traceability of this equipment. Please return the self addressed registration card included with the product and fill in the required information.

CAUTION !

Maintenance

In case of malfunction of this device, contact your local DrägerService or our Factory Authorized Technical Service Center.

The device must be inspected and serviced (preventive maintenance) by competent and factory authorized technical service representatives at regular 6 month intervals. A record must be kept on this preventive maintenance.

We recommend obtaining a service contract through your vendor.

Maintenance or repair of the radiant warmer shall be performed only by Dräger authorized technical service representatives.

Precautions During Preparation

WARNING !

Only accessories listed in these Operating Instructions are recommended by Dräger for use with the Infant Radiant Warmer 600 W.

We recommend contacting the manufacturers/ distributors of third party accessories regarding compliance of their product with radiant warmers before attempting to use them in conjunction with the Dräger Infant Radiant Warmer 600 W.

All accessories used must comply with national safety standards for electromedical equipment used in patient rooms (e. g. IEC 601.1).

Precautions During Operation

WARNING !

Always use radiant warmer that has been cleaned and disinfected and has been successfully tested to be ready for operation.

WARNING !

Do not touch top of radiant warmer or protective screen.

Danger of burn injuries!

WARNING !

Do not use flammable detergents or medications while radiant warmer is in operation.

Danger of fire!

WARNING !

Never leave baby unattended while radiant warmer is in operation!

WARNING !

When radiant warmer is mounted on wall or mobile stand, always ensure appropriate clearance of at least 24 inches (60 cm) over heated bed surface.

Radiant heat is more intense at shorter distances which increases risk of patient burns.

WARNING !

Any additional external heat sources, such as phototherapy lights or heated mattresses, will increase the heat supplied to the patient and must be taken into consideration.

Keep out of direct sunlight.

WARNING !

Do not put any medications or infusion solutions in the heated area.

WARNING !

All accessories used must comply with national safety standards for electromedical equipment used in patient rooms (IEC 601.1).

WARNING !

Continuous or intermittent audible alarms require immediate operator attention to avert or to prevent development of situations with the possibility of patient injury.

WARNING !**Patient Temperature Monitoring**

Check the baby's core temperature at regular intervals and adjust temperature or heater output setting to individual patient needs.

Core temperature of the baby must be monitored particularly carefully during phototherapy or while radiant warmer is used in conjunction with the Babytherm heated bassinet (see pages 26 - 28).

Skin temperature monitoring is no substitute for core temperature checks since the two parameters do not always closely correlate.

WARNING !

Skin temperature control must not be used with babies in shock. Because of reduced peripheral bloodflow the skin temperature of these babies occasionally lies well below the core body temperature. Using a skin temperature control system could lead to overheating. We recommend operating the radiant warmer in manual control mode when caring for patients with such conditions.

WARNING !

Dräger, Inc. cannot warrant or endorse the safe performance of third party heated bassinets for use with the Infant Radiant Warmer 600 W. Specifically, combinations with heated bassinets that are not intended for use with radiant warmers bear risks of excessive overall heat transfer to the patient.

We recommend contacting the manufacturers/ distributors of third party heated bassinets units regarding compliance of their product with radiant warmers before attempting to use them in conjunction with the Infant Radiant Warmer 600 W.

The following notes on settings of the Infant Radiant Warmer 600 W assume use with the Babytherm® 8000 heated bassinet and are intended as guidelines only.

WARNING !

Measure core temperature at regular intervals when using skin temperature control.

WARNING !

Always verify that single use sensor probe is specified and approved for use with Dräger Infant Radiant Warmer 600 W.

WARNING !

The sensor probe must never be placed under the baby. It would be measuring and attempting to control core temperature rather than skin temperature in this case.

WARNING !

A displaced or detached skin temperature sensor would be measuring air temperature so that the baby could become overheated.

WARNING !

Do not use skin temperature sensors to measure core temperature rectally.

CAUTION !

Never put anything on top of the radiant warmer. Ventilation may be blocked and the radiant warmer and the object placed there may be damaged.

Precautions During Care

WARNING !

Always follow accepted hospital procedures for handling equipment contaminated with body fluids.

WARNING !

Always disconnect power supply before cleaning and disinfecting.

CAUTION !

Certain components of the radiant warmer consist of materials that are sensitive to certain organic solvents sometimes used for cleaning and disinfecting (e. g., phenols, halogen releasing compounds, oxygen releasing compounds, strong organic acids, etc.). Exposure to such substances may cause damage that is not always immediately recognized. Sterilization of the radiant warmer itself with ethylene oxide (EtO) is also not recommended.

CAUTION !

Do not allow any liquids to penetrate the inside of the heater unit or to come in contact with the heater elements.

Precautions During Maintenance

WARNING !

To avoid any risk of infection, clean and disinfect radiant warmer and accessories before any maintenance according to established hospital procedures – this applies also when returning radiant warmers or parts for repair.

WARNING !

Preventive Maintenance work on the Infant Radiant Warmer 600 W may be performed by trained and factory authorized staff only.

WARNING !

Always disconnect supply before servicing.

WARNING !

Never operate radiant warmer if it has suffered physical damage or does not seem to operate properly. In this case, always refer servicing to properly trained and factory authorized service personnel.

WARNING !

Treatment of batteries:
Do not throw into fire! Do not force open!
Danger of bodily injury.
Follow all local, state, and federal regulations with respect to environmental protection when disposing of batteries.



Infant radiant warmer on mobile stand

Description

The Infant Radiant Warmer 600 W consists of a heater and a control system.

The heater unit contains four infrared ceramic radiant heating elements and a low-voltage halogen examination light.

The ceramic radiant heater elements are positioned to ensure that heat is evenly distributed over the entire bed.

The halogen examination light provides good lighting over the work area and, in contrast to other incandescent or fluorescent light sources, good color reproduction, so that diagnostically important color nuances are more easily recognized.

The control system is integrated into the heater enclosure. The membrane control pad with display and

data entry keys is located on the side of the housing facing the working area.

Fixed heater output is set via manual control (manual operating mode).

Skin temperature is controlled at a set value by a skin temperature control system (auto operating mode). In both operating modes, control routines and alarm features provide comprehensive monitoring.

The built-in timer – for use in delivery rooms it can be activated at the moment of birth – sounds a reminder at the APGAR relevant time marks (1 minute, 5 minutes, 10 minutes).

Intended Use

Radiant warmer system to compensate for heat lost by infants during medical examinations or therapy, self contained on mobile stand.

Optionally

- as an accessory for Babytherm® 8000
- with wall mount over changing and examination tables.

WARNING !

When radiant warmer is mounted on wall or mobile stand, always ensure appropriate clearance of at least 24 inches (60 cm) over heated bed surface.

Radiant heat is more intense at shorter distances which increases patient risk of burns.

Medical Attention

WARNING !

Whenever a patient is treated with a radiant warmer, constant attention by qualified medical staff is required in order to provide immediate corrective action in case of a malfunction.

The operator shall not rely solely on the built-in temperature monitoring of the radiant warmer and must always assume full responsibility for proper patient temperature in all situations.

Preparation

Before Using Radiant Warmer for the First Time

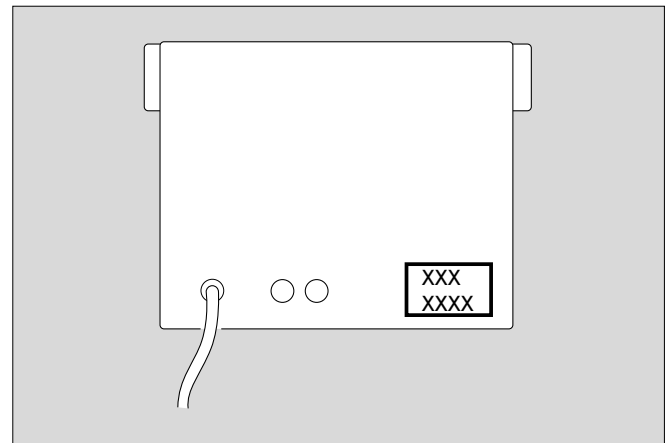
- Check that line voltage corresponds with value on rating plate located next to power supply cable.
- Connect to line power supply.

WARNING !

Only accessories listed in these Operating Instructions are recommended by Dräger for use with the Infant Radiant Heater 600 W.

We recommend contacting the manufacturers/ distributors of third party accessories regarding compliance of their product with radiant heaters before attempting to use them in conjunction with the Dräger Infant Radiant Heater 600 W.

All accessories used must comply with national safety standards for electromedical equipment used in patient rooms (e. g. IEC 601.1).



Testing Readiness for Operation

Testing Readiness for Operation

Before each use.

- Check that the equipment has been disinfected.

- 1 Push power switch in – as far as it will go = ON.

The heater performs a self test to verify micro-processor function.

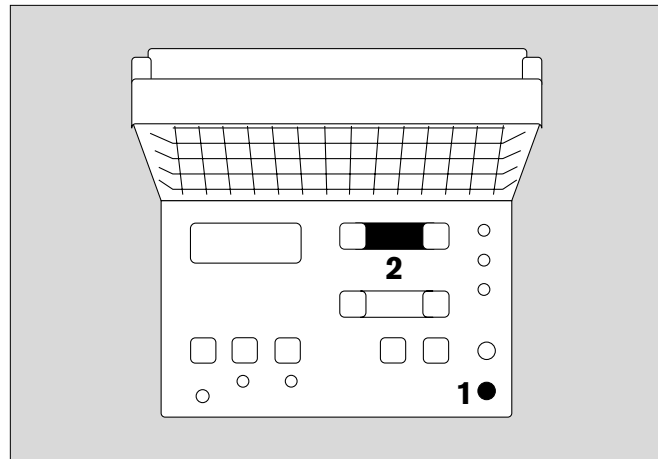
All displays will be lit for about 1 second.

All digital displays will show **88.8**.

A continuous audible alarm will start.



Then the heater switches to »Man« operating mode (manual setting of heater output).

- 2 If **Err** is displayed (= error), refer to page 32.




- 3 On the display for heater output level, 5 LED-bars flash = heater level 5 is set as default.

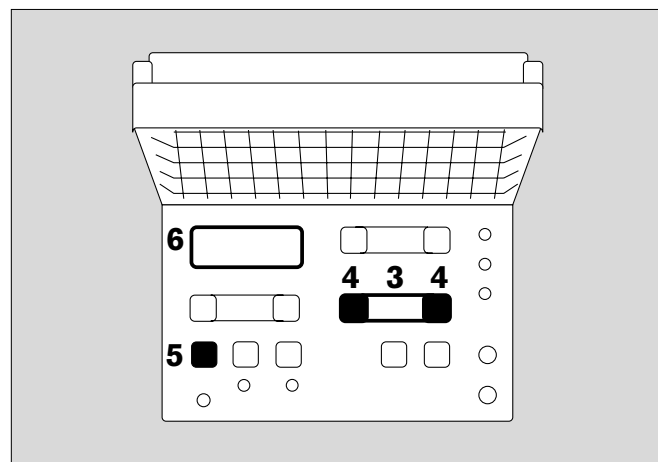
NOTE: Heater output level 5 corresponds with 10 mW/cm^2 at a distance of 70 cm (27.5 inches).

- 4 Press  or  key briefly:
Heater level 5 is set.

If the keys are kept pressed, the heater output level will change.

- 5 Press  key: this will simulate a reference temperature in order to verify temperature measurement accuracy.

- 6 Temperature display shall show:
36 °C ($\pm 0.1 \text{ °C}$).




Testing Power Failure Alarm and NiCd Battery

Testing Examination Light

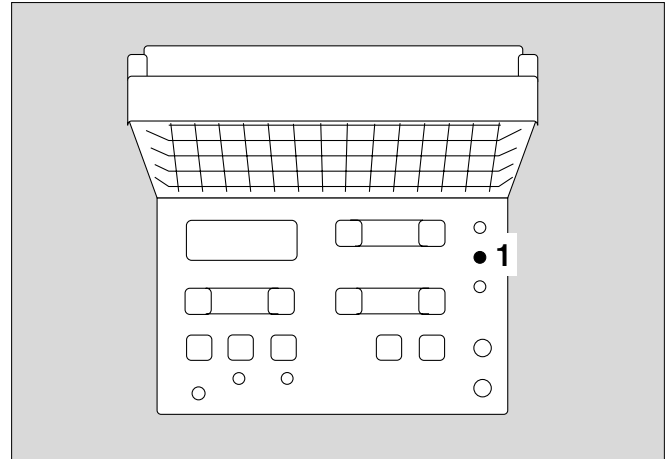
Testing Readiness for Operation

Testing Power Failure Alarm and NiCd Battery



- Disconnect from line power.
- 1 Red LED  is lit. Intermittent audible alarm sounds at a constant volume for at least 30 seconds.

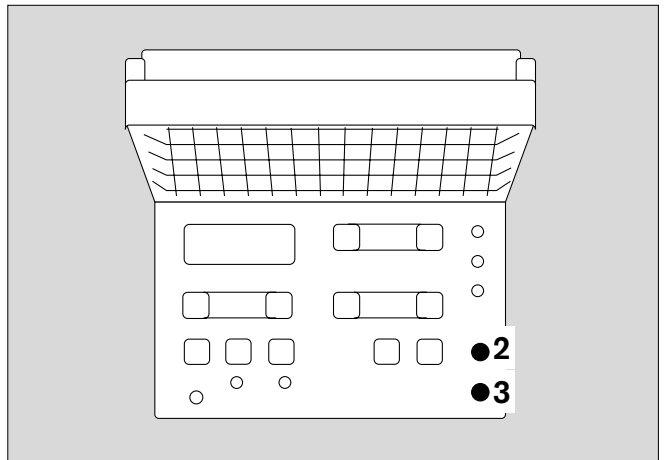
If volume decreases too soon:

- Connect heater back to line power and leave switched on for 24 hours; the battery will be charged.
- Repeat test.



Testing Examination Light

- 2 Press  key:
The bed area is now illuminated.
- 2 Press  key again:
The light goes out.
- 3 Push power switch in fully = OFF.



Precautions

WARNING !

Always use radiant heater that has been cleaned and disinfected and has been successfully tested to be ready for operation.

WARNING !

Do not put any medications or infusion solutions in the heated area.

WARNING !

Do not touch top of radiant heater or protective screen.

Danger of burn injuries!

WARNING !

All accessories used must comply with national safety standards for electromedical equipment used in patient rooms (e. g. IEC 601.1).

WARNING !

Do not use flammable detergents, or medications while radiant heater is in operation.

Danger of fire!

WARNING !

Continuous or intermittent audible alarms require immediate operator attention to avert or to prevent development of situations with the possibility of patient injury.

WARNING !

Never leave baby unattended while radiant warmer is in operation!

WARNING !

Never put anything on top of the radiant warmer. Ventilation may be blocked and the radiant warmer may be damaged. The object placed there may be damaged or burned. Danger of fire!

WARNING !

When radiant heater is mounted on wall or mobile stand, always ensure appropriate clearance of at least 24 inches (60 cm) over heated bed surface.

Radiant heat is more intense at shorter distances which increases patient risk of burns.

WARNING !

Any additional external heat sources, such as phototherapy lights or heated mattresses, will increase the heat supplied to the patient and must be taken into consideration.

Keep out of direct sunlight.

Setting Heater Output Manually

In »Man« operating mode

for instance during short-term treatment, for infants in shock or when the skin temperature control system cannot be used.


The radiant warmer then provides a pre-set heater output, which is not linked to the body temperature of the infant.

The heater output can be manually set between setting 1 and 10, with setting 10 providing the maximum power output. For more details see section "Technical Data", page 35.


WARNING !

Patient Temperature Monitoring
Check the baby's core temperature at regular intervals and adjust temperature or heater output setting to individual patient needs. Core temperature of the baby must be monitored particularly carefully during phototherapy or while radiant warmer is used in conjunction with the Babytherm heated bassinet (see pages 26 - 28). Skin temperature monitoring is no substitute for core temperature checks since the two parameters do not always closely correlate.

Intermittent audible alarm sounds every 15 minutes at heating levels 6 or higher. It can be suppressed by reset for 15 minutes always. This serves as a special reminder while the radiant warmer is operating at increased heater output that core temperature must be monitored continuously.



This reminder must be acknowledged by pressing the  key.

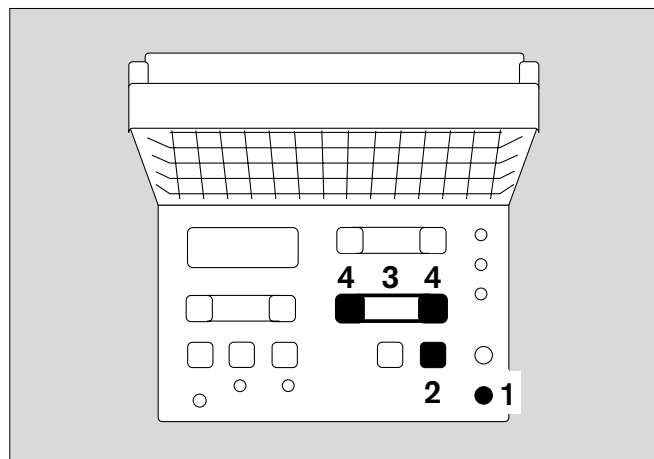
NOTE: At heater output levels up to 5 no reminder is active.

- 1 Push power switch in – as far it will go = ON. Wait for self-test to complete. Thereafter, the heater switches to »Man« operating mode.
- 2 The green LED in the button  is lit.
- 3 On the display for heater level 5 green LED segments flash = heater level 5.

NOTE: The default setting is level 5. At a distance of 70 cm (27.5 inches) level 5 corresponds with 10 mW/cm² irradiance.

NOTE: This setting can be used as a standby setting to warm a bed surface, e. g. in the delivery room when a birth is expected.

- 4 Briefly press  or  key: the green LED segments stay continuously lit.





Required warm-up time


Ready for use after 30 minutes warm-up.

- Warm up in »Man« operating mode, at heater level 5.

To adjust setting:

- 1 Keep  button or  button pressed; the heater level can be changed in increments. Each green LED segment represents a heater output change of approximately 10 %.

NOTE: The heater output is an linear function over the range of the manual mode. Please see section "Technical Data" on page 35 for more information.

- 2 The yellow LED  is lit, or flashes in sync with the heater control pulses.

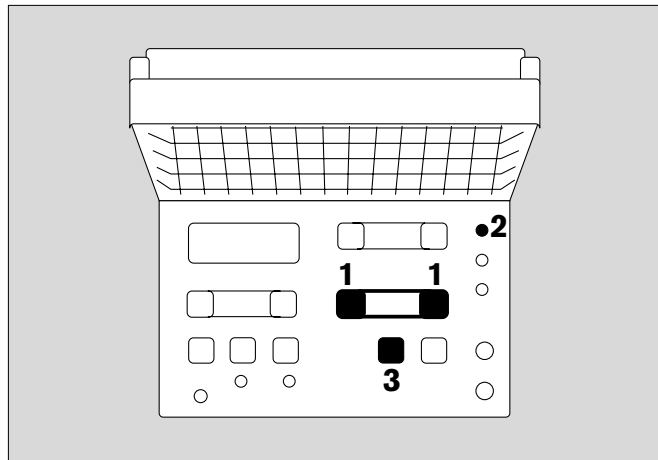
WARNING !

Never leave baby unattended while radiant heater is in operation!

From heater level 6 the heater requests measurement every 15 minutes.

- 3 Acknowledge with  button.

NOTE: If a skin temperature sensor is connected and in place in »Man« mode, a temperature will be indicated, although skin temperature control is not active.



Using Skin Temperature Control**WARNING !**

Skin temperature control must not be used with babies in shock. Because of reduced peripheral bloodflow the skin temperature of these babies occasionally lies well below the core body temperature. Using a skin temperature control system could lead to overheating. We recommend to set heater output manually when caring for patients with such conditions.

WARNING !

Do not use on children with high temperatures. Their skin temperature is significantly higher than normal so that controlling skin temperature would lead to hypothermia. We recommend to set heater output manually when caring for patients with such conditions.

WARNING !

Check infant skin condition and the security of the skin temperature probe attachment in regular intervals when using the skin temperature control mode.

For setting heater output manually, see page 17.

WARNING !

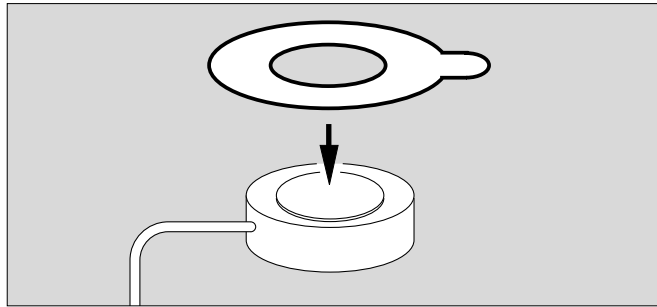
Measure core temperature at regular intervals when using skin temperature control.

NOTE: Skin temperature should be the preferred operating mode under normal conditions. Follow warnings and information on page 24.

Connect skin temperature sensor

When using a reusable skin temperature sensor (order separately, see Ordering Information, page 37):

- Attach a double-sided adhesive ring (see Ordering Information, page 37, for reordering supplies) to the skin temperature sensor:
 - Remove backing from adhesive ring and apply concentrically to sensor leaving metal surface exposed in the middle.
- Remove protective paper from other side and attach sensor with the adhesive ring to an appropriate area of skin.



When using a disposable temperature sensor:

WARNING !

Always verify that single use sensor probe is specified and approved for use with Dräger Infant Radiant Warmer 600 W.

- Attach sensor with its skin probe cover to an appropriate area of the skin.

If the infant is lying on his back:

- Place sensor on the abdomen in the liver region.

If the infant is lying on his stomach:

- Place sensor on the back, preferably in the kidney region.

WARNING !

The sensor probe must never be placed under the baby. It would be measuring and attempting to control core temperature rather than skin temperature in this case.

- Secure sensor cable with adhesive tape as necessary to provide strain relief.
- **Check regularly that the skin temperature sensor is in proper contact with the baby's skin.**

WARNING !

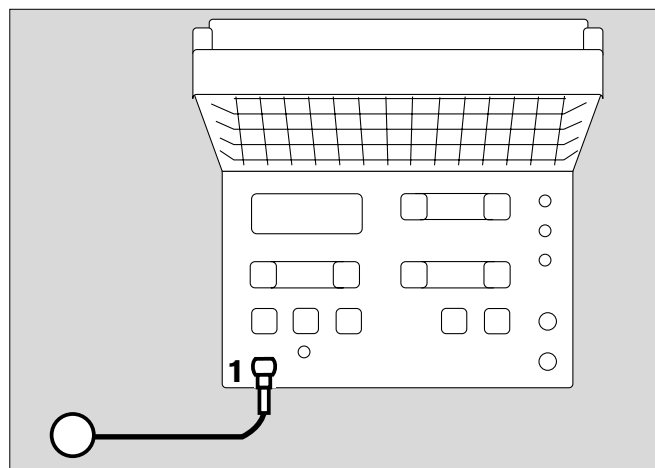
A displaced or detached skin temperature sensor would be measuring air temperature so that the baby could become overheated.

WARNING !

Do not use skin temperature sensors to measure core temperature rectally.

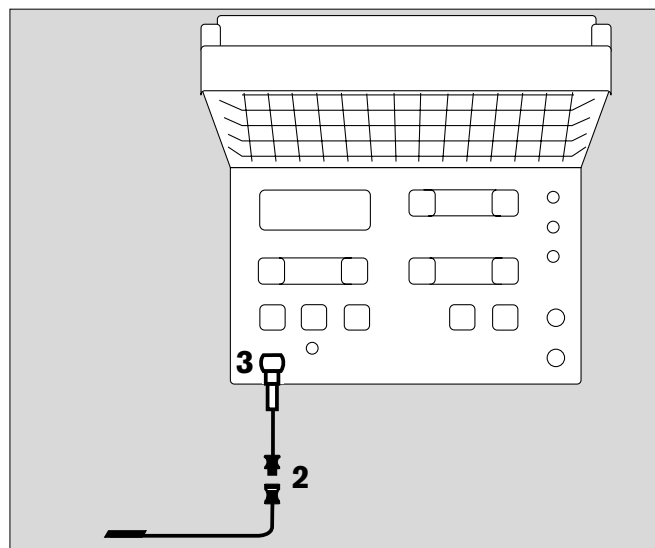
When using the disk-shaped (reusable) temperature probe:

- 1 Connect sensor plug to socket.

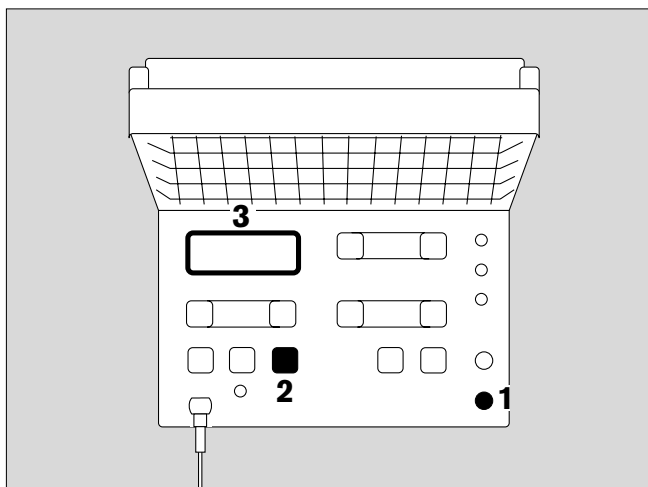


When using a disposable (pin-shaped) temperature probe:

- 2 Connect adapter cable to sensor cable and
- 3 connect adapter plug to socket.

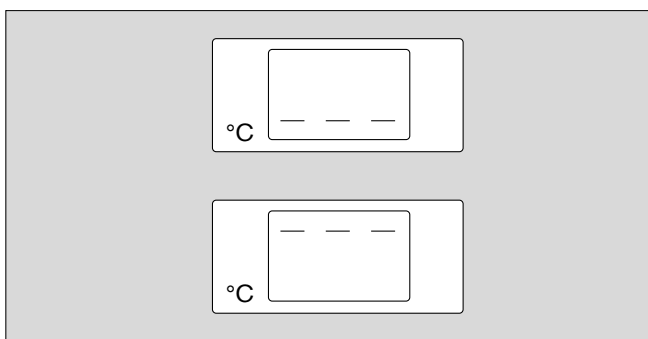


- 1 Push power switch in – as far it will go = ON.
After a brief self test, the heater switches to »Man« operating mode.



If the temperature reading is outside the measuring range of 33 °C to 38 °C:

- 3 dashes at the bottom of the display = temperature below 33 °C.
- 3 dashes at the top of the display = temperature above 38 °C.



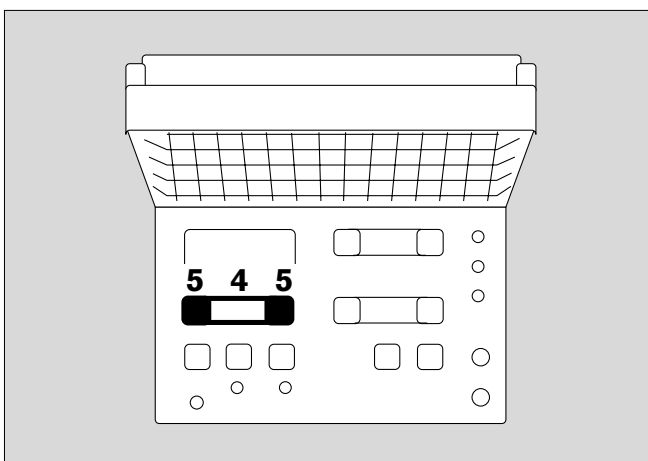
NOTE: The skin temperature sensor must be allowed to adjust to the temperature of the child for at least 5 minutes.

When the value displayed remains constant:




- 2 Press **Auto** button: skin temperature control is operating, the green LED in the button is lit.
- 3 Skin temperature is displayed.

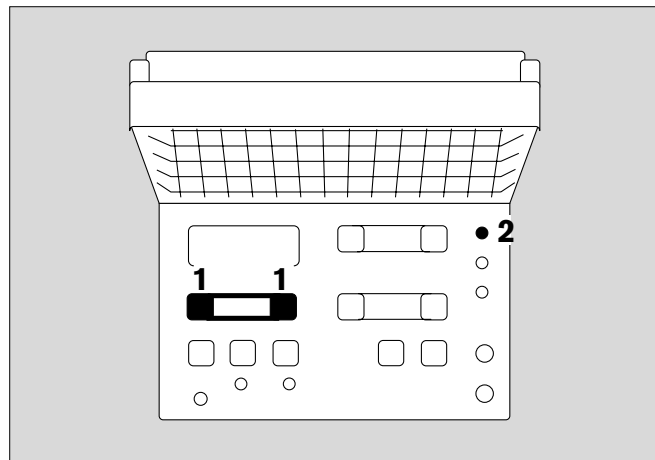
Initially, the heater defaults to a temperature of 36.3 °C.

- 4 Display **36.3 °C** flashes.
- 5 Press **↓** button or **↑** button briefly.
This temperature is accepted, the display remains continuously lit.




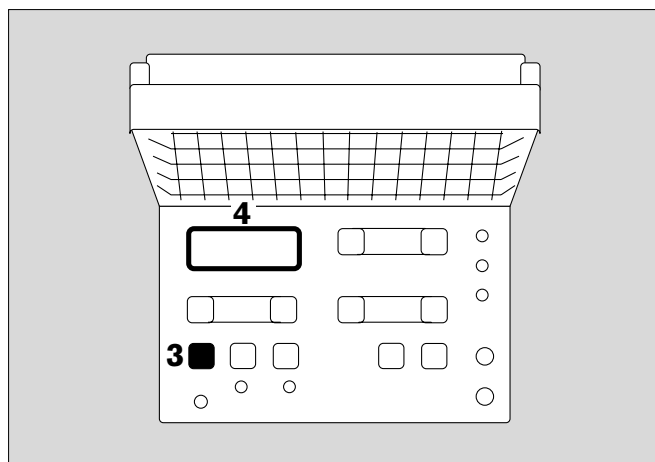
The set temperature can be changed in 0.1 °C increments:

- 1 Keep  button or  button pressed until the required temperature appears in the display.
- 2 The yellow LED  is lit or flashes in sync with the heater control pulse (displaying heater output proportionally).



To test functioning during operation:

- 3 Press  button.
- 4 The simulated temperature value displayed must be 36 °C (±0.1 °C) during this function test.



If the sensor plug is disconnected or the sensor is defective:

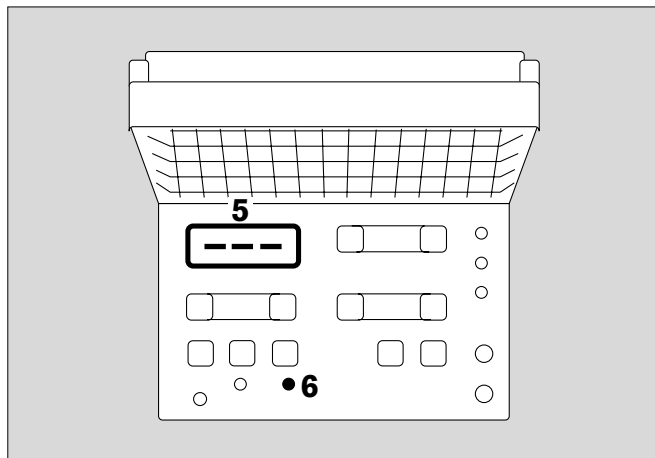
- 5 Three flashing dashes in the middle of the display,
 - 6 red LED »Sensor« alarm lit.
- Continuous audible alarm (cannot be silenced).

Then:

- re-connect sensor plug immediately or replace skin temperature sensor.

If the fault cannot be immediately eliminated:

- switch to »Man« operating mode.



Wait for steady state to be reached

Deviations between the set value for skin temperature and the measured value stabilize over **periods of approximately 5 to 15 minutes.**

NOTE: An infant's skin temperature changes frequently, for instance as a result of food intake or treatment procedures. Deviations of a tenth of a degree are normal.

Therefore:

Only change the set value for skin temperature if core temperature needs to be corrected.

For deviations greater than $\pm 0.5^{\circ}\text{C}$ between set and measured value for skin temperature:


- 1 Red LED » $\pm 0.5^{\circ}\text{C}$ « flashes, an intermittent audible alarm will start.

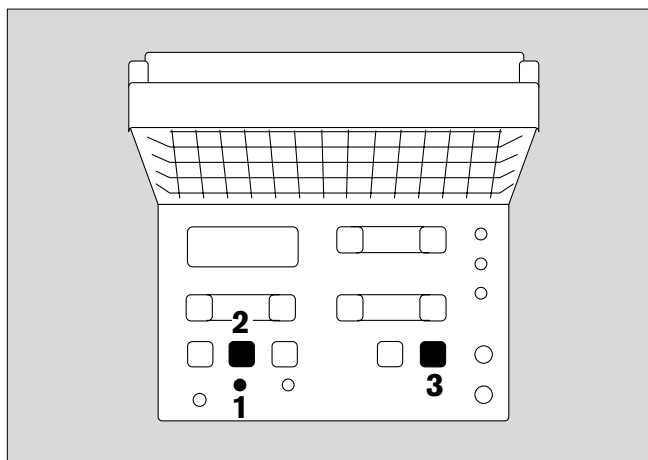
The audible alarm can be silenced for approximately 10 minutes:

- 2 Press  button, yellow LED in key will light up.

If the measured value for skin temperature is again within the range of $\pm 0.5^{\circ}\text{C}$ of set value, the red LED » $\pm 0.5^{\circ}\text{C}$ « will go out and intermittent audible alarm will stop.

Whenever a skin temperature sensor has to be removed from the skin temporarily, first switch to »Man« operating mode:

- 3 Press  button until green LED lights; »Man« operating mode is now active.



Using Timer

for timing periods of up to 100 minutes.

After the timer has been started, for example, at the moment of birth, three short sounds are given after 1 minute, after 5 minutes, and after 10 minutes, as a reminder to update the APGAR score.

To start timer:

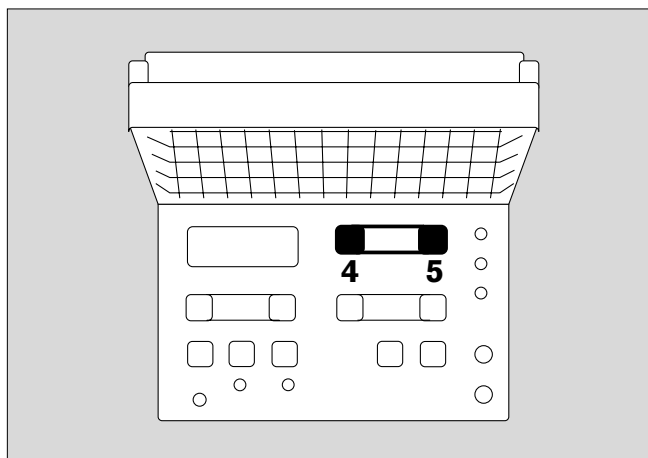
- 4 Press  button.

To stop:

- 5 Press  button.

To reset display:

- 5 Press  button a second time.

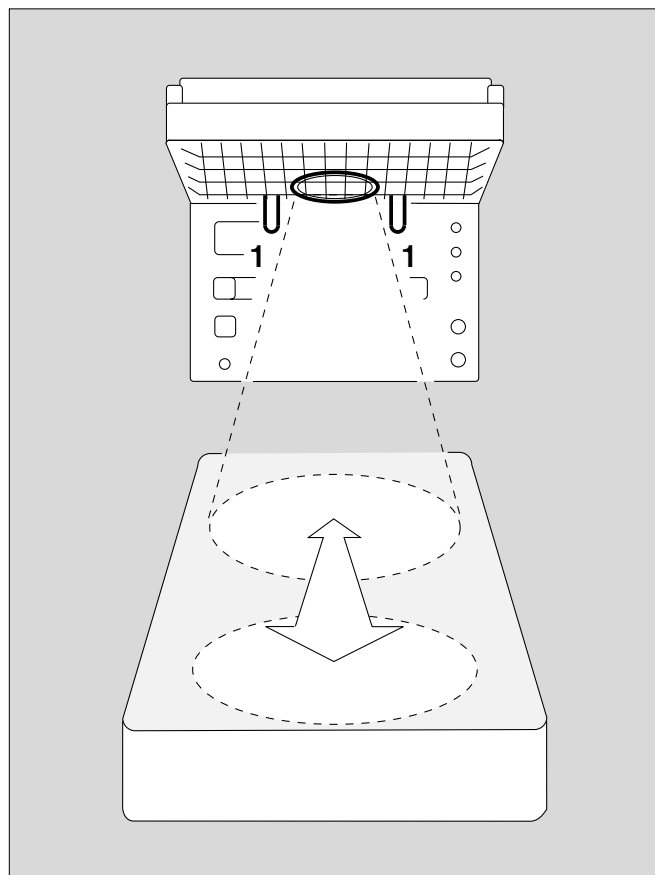


Positioning Examination Light

To aim lighting

- 1 Push lever towards front panel:
the light beam tilts backwards.

Pull lever away from front panel:
the light beam tilts forwards.



Using of Infant Radiant Warmer Together With Heated Bassinets

WARNING !

Dräger, Inc. cannot warrant or endorse the safe performance of third party heated bassinets for use with the Infant Radiant Warmer 600 W. Specifically, combinations with heated bassinets that are not intended for use with radiant warmers bear risks of excessive overall heat transfer to the patient.

We recommend contacting the manufacturers/ distributors of third party heated bassinets units regarding compliance of their product with radiant warmers before attempting to use them in conjunction with the Infant Radiant Warmer 600 W.

The following notes on settings of the Infant Radiant Warmer 600 W assume use with the Babytherm® 8000 heated bassinet and are intended as guidelines only.

WARNING !

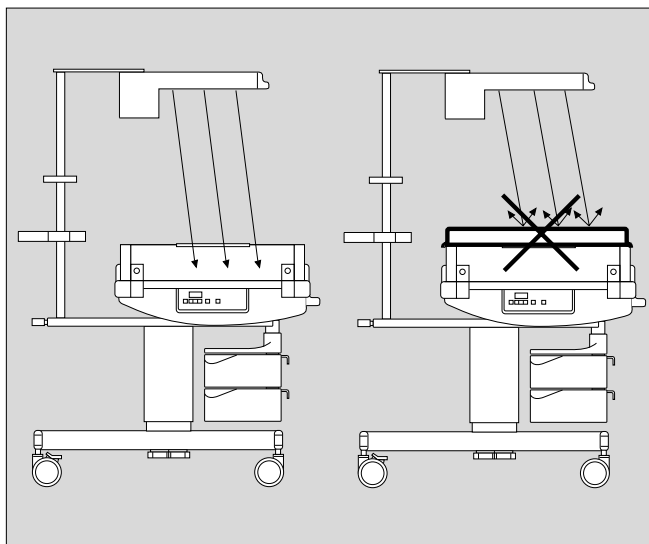
Patient Temperature Monitoring

Core temperature of the baby must be monitored particularly carefully while the radiant warmer is used in conjunction with heated bassinets.

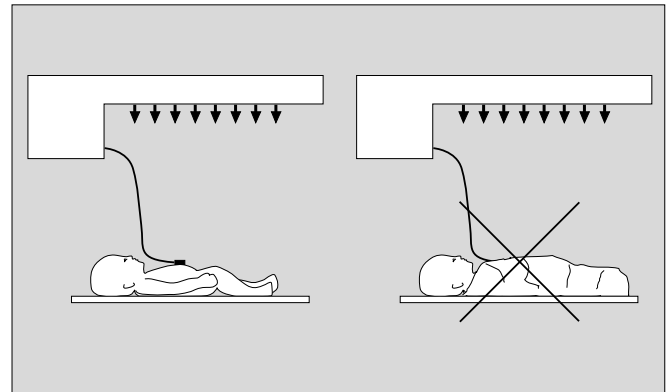
Adjust temperature settings to individual patient needs.

Skin temperature monitoring is no substitute for core temperature checks since the two parameters do not always closely correlate.

- Do not use bassinet covers. Otherwise, a radiant warmer will not have the intended effect.

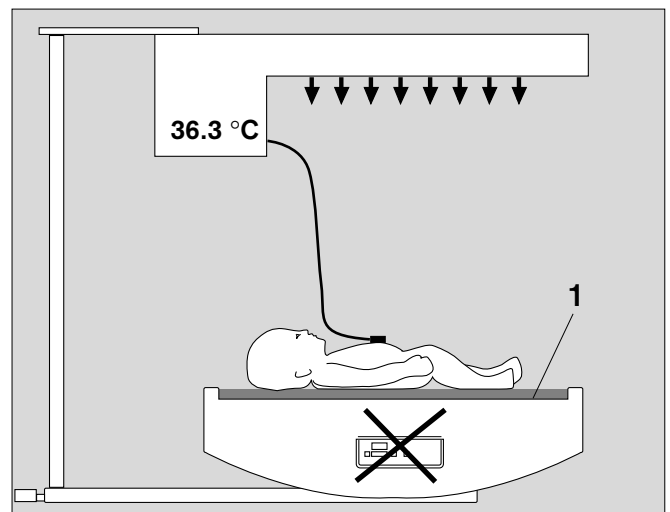


- Do not cover or dress patient.



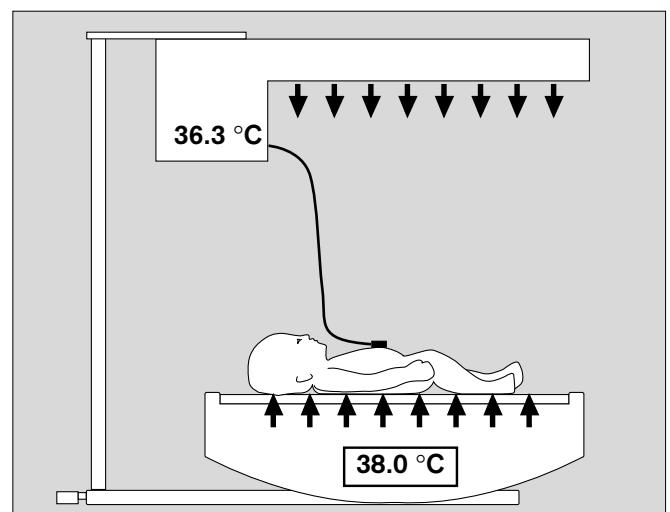
Using radiant warmer with Babytherm mattress heating not active

- 1 Always use a foam rubber mattress in this case!**
Do not use a gel mattress without mattress heating, or when mattress heating is switched off!



Using radiant warmer and mattress heating with a gel mattress

- To add warmth from below, in addition to radiant warmer.
Set mattress heater temperature to, e. g., 38 °C,
and
set skin temperature at the radiant warmer to, e. g., 36.3 °C or other level desired.



Operation

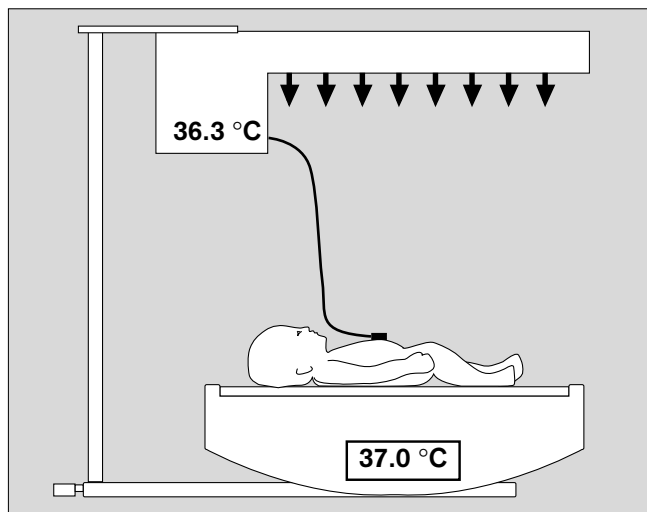
Using Infant Radiant Warmer Together With Heated Bassinets

- To achieve a neutral balance:

Set mattress heater temperature to 37 °C,

and

set skin temperature at the radiant warmer to, e. g., 36.3 °C or other level desired.

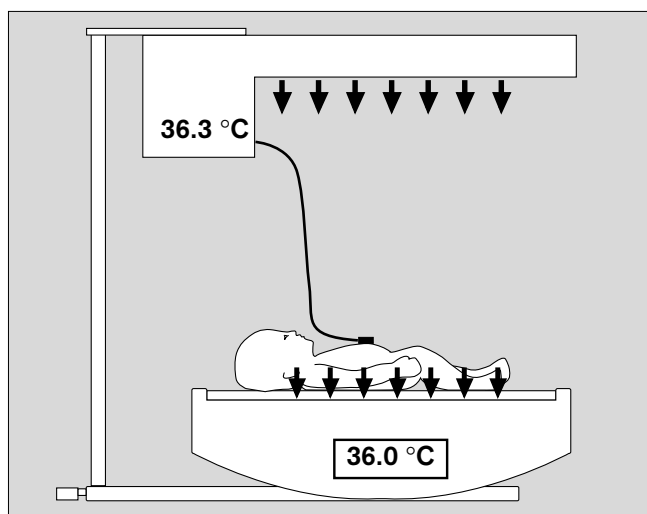


- To cool the patient from below:

Set mattress heater temperature to, e. g., 36 °C,

and

set skin temperature at the radiant warmer to, e. g., 36.3 °C or other level desired.



Shutting Down

First:

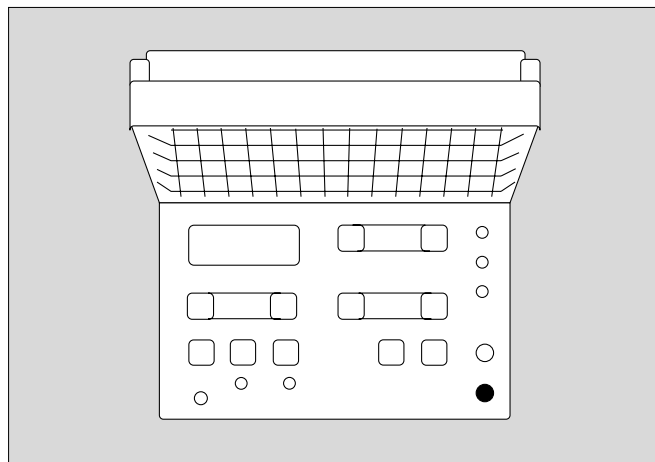
- Push power switch in as far as it will go = OFF.

Then:

- Disconnect from line power.

NOTE: Disconnect from power in the sequence specified. Otherwise, the power failure alarm will be activated.

Allow a minimum of 30 minutes for the radiant heater to cool down prior to cleaning and disinfection.



Care

Perform any disinfection procedures according to established hospital procedures as well as to the following additional instructions.

WARNING !

Always follow accepted hospital procedures for handling equipment contaminated with body fluids.

Preparation for Cleaning

- Switch off the device(s), pull power plug, and turn off all pressurized gases that may be in use at the site.

WARNING !

Always disconnect power supply before cleaning and disinfecting.

Before any disinfecting procedures, allow heater to cool down for about 30 minutes.

Cleaning / Disinfecting

CAUTION !

Certain components of the radiant warmer consist of materials that are sensitive to certain organic solvents sometimes used for cleaning and disinfecting (e. g. alcohols, phenols, halogen releasing compounds, oxygen releasing compounds, strong organic acids, etc.). Exposure to such substances may cause damage that is not always immediately recognized. Sterilization of the radiant warmer itself with ethylene oxide (EtO) is also not recommended.

In order to prevent any damage, we recommend that only detergents and disinfectants are used that are compatible with the materials used in the heater and its components, e. g. surface disinfectants on the basis of

- aldehydes, or
- quarternary ammonium compounds

for disinfection procedures.

Ensure that all disinfectants are registered with the U.S. Environmental Protection Agency for use as intended. Always follow the instruction labels specifically with respect to prescribed concentrations and the necessary exposure times.

Cleaning and Disinfection Procedures

– Heater unit

- Remove visible impurities with a disposable cloth immersed in a detergent.
- Wipe-disinfect surfaces.
- Wipe and dry with a clean, damp cloth.

CAUTION !

Do not allow any liquids to penetrate the inside of the heater unit or to come in contact with the heater elements.

– Reusable temperature sensor probe and cable.

- Disinfect according to sensor probe operating instructions.
- Wipe and dry with a clean, damp cloth.

Maintenance

WARNING !

To avoid any risk of infection, clean and disinfect bassinet and accessories before any maintenance according to established hospital procedures – this applies also when returning units or parts for repair.

WARNING !

Always disconnect supply before servicing.

WARNING !

Never operate the radiant warmer if it has suffered physical damage or does not seem to operate properly. In this case always refer servicing to properly trained and factory authorized service personnel.

Preventive Maintenance Intervals

WARNING !

Preventive Maintenance work on the Infant Radiant Warmer 600 W may be performed by trained and factory authorized staff only.

Inspection and Preventive Maintenance every six (6) months

Disposal of Batteries

WARNING !

Treatment of batteries:
Do not throw into fire! Do not force open!
Danger of bodily injury.



Follow all local, state, and federal regulations with respect to environmental protection when disposing of batteries.

Replacement of Parts

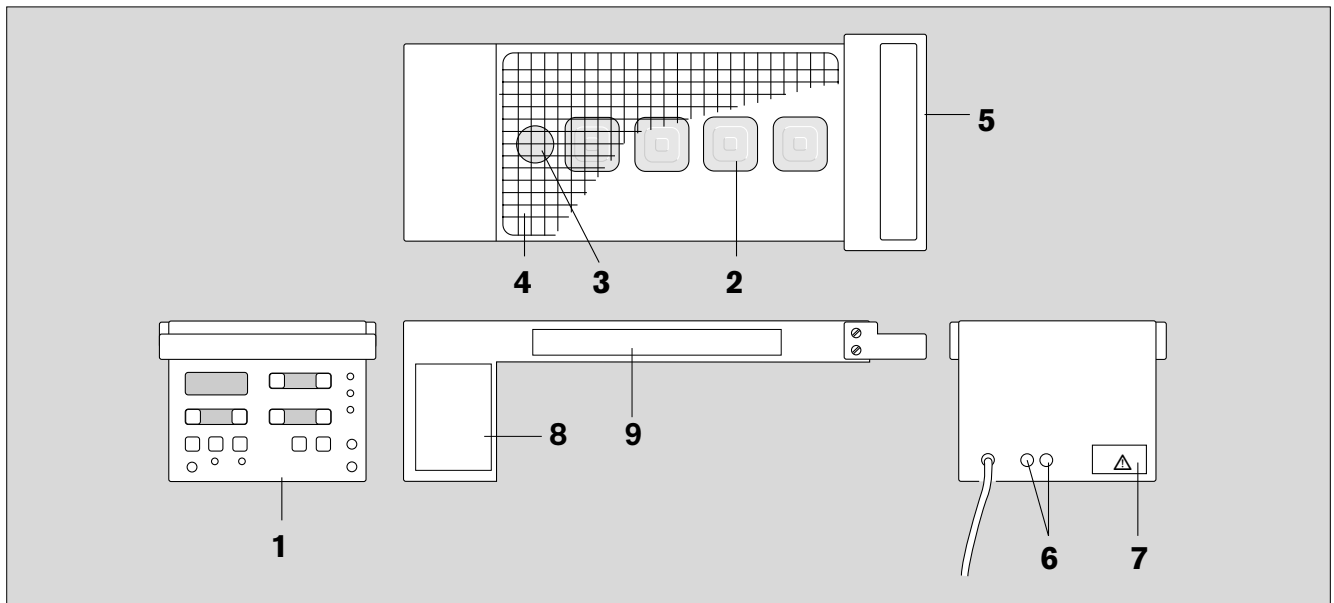
Infrared ceramic heater elements and halogen light	by factory trained technician
NiCd battery for power failure alarm	every 2 years by factory trained technician
Timekeeper RAM	every 2 years by factory trained technician

Troubleshooting

Troubleshooting


Fault	Cause	Remedy
Red LED »±0,5 °C« flashes. Intermittent audible alarm.	Measured skin temperature value has deviated from set value by more than ±0.5 °C.	When measured value is below set value: check that skin temperature sensor is correctly positioned. When measured value is above set value: Immediately check core temperature!
Red LED »Sensor« is lit. Continuous audible alarm.	Skin temperature sensor plug not connected. Faulty sensor	Check plug connection. Switch to »Man« operating mode, replace sensor, then switch back to »Auto« operating mode.
Red LED  is lit. Continuous audible alarm.	No electrical power	Check connection to line power. Check that the two main fuses are intact. Check line power supply at wall outlet. Call DrägerService.
Red LED »Inop.« is lit. Err appears on the timer alternating with error code. Continuous audible alarm.	General device malfunction	Note error code, call DrägerService.
Examination light does not work.	Defective halogen bulb	Have halogen bulb replaced by trained service technician.
Inadequate heater output.	One or more infrared radiant heater elements defective.	Have heater elements replaced by trained service personnel.
Reference temperature of 36 °C is outside the tolerance of ±0.1 °C, when button  pressed.	Temperature measuring system not working accurately.	Call DrägerService.

Labels



Overview

- 1 Control panel
- 2 Infrared ceramic radiant heater elements (4 ea.)
- 3 Halogen examination light
- 4 Protective screen
- 5 Handle
- 6 Fuses (2 ea.)
- 7 Rating plate

 Warning! Read manual before using the Infant Radiant Warmer 600 W.

Labels

- 8 Main WARNING/CAUTION label

- 9 Quick Reference Instructions

DANGER !

RISK OF EXPLOSION IF USED IN THE PRESENCE OF FLAMMABLE ANESTHETICS

WARNING !

DISCONNECT SUPPLY BEFORE SERVICING

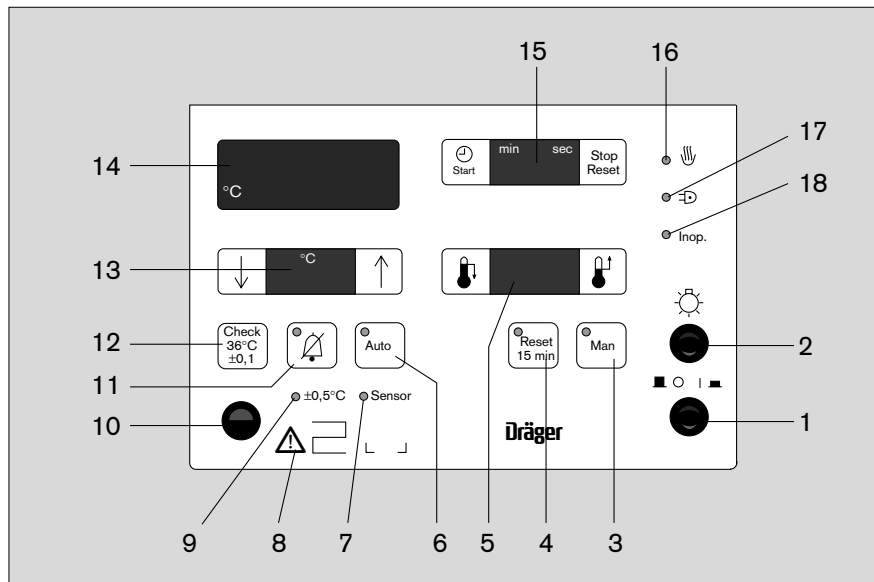
REPAIRS ON THIS EQUIPMENT TO BE PERFORMED ONLY BY DrägerService OR ITS AUTHORIZED SERVICE CENTERS

CAUTION !






TO MAINTAIN GROUNDING INTEGRITY, CONNECT ONLY TO A "HOSPITAL GRADE" RECEPTACLE

TO REDUCE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER

FEDERAL (USA) LAW RESTRICTS THIS DEVICE TO SALE BY OR ON THE ORDER OF A PHYSICIAN



Control Panel

- 1 Power switch
 I Switch ON
 0 Switch OFF
- 2 Light switch
- 3 Button »Man« for manual operating mode, green LED is lit while switched on.
- 4 Button to acknowledge audible reminder to measure core temperature every 15 minutes while set heater level is higher than 5 in »Man« mode. After acknowledging, yellow LED goes out.
- 5 Green LED bargraph for heater output, 1 segment represents an output change of 10 %; adjacent to the left: button to reduce heater output; adjacent to the right: button to increase heater output.
- 6 Button »Auto« ("automatic" or skin control operating mode); green LED stays lit after button is pressed = skin temperature control has been switched on.
- 7 Red LED »Sensor«, is lit during skin temperature control if the skin temperature sensor has been disconnected or is defective.
- 8  Follow the Instructions for Use of the skin temperature control, page 24.
- 9 Red LED »±0.5 °C«, flashes if the measured value for skin temperature deviates from set value by more than ± 0.5 °C
- 10 Socket for skin temperature sensor
- 11 Button for 10 minute silencing of intermittent audible alarm; the yellow LED is lit while intermittent audible alarm is muted.
- 12 Button to simulate temperature of 36 ± 0.1 °C (as reference).
- 13 Display of set value of skin temperature adjacent to the left: button to reduce set value; adjacent to the right: button to increase set value.
- 14 Display for measured value for skin temperature
- 15 Timer display; adjacent to the left: button to start; adjacent to the right: button to stop (1x) / to reset (2x).
- 16 Yellow LED , lights/flashes in sync with the heater control pulses.
- 17 Red LED , is lit during power failure.
- 18 Red LED »Inop«, is lit after a device malfunction

Ambient conditions

For operation:

Temperature	15 to 30 °C (59 to 86 °F)
Atmospheric pressure	900 hPa to 1100 hPa
Relative humidity	0 to 90 % (no condensation)

During storage and transport

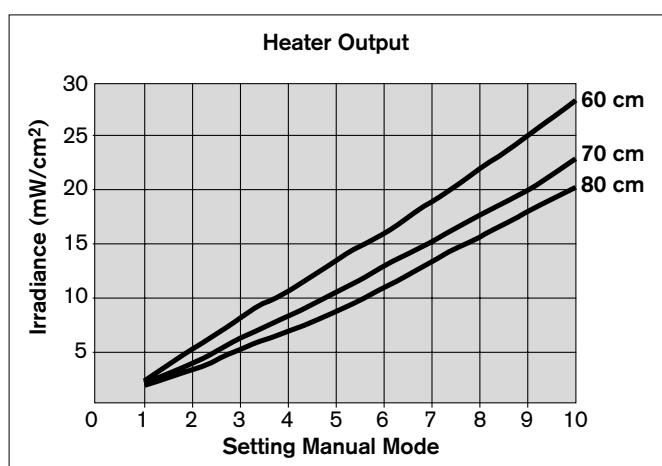
Temperature	–20 to 60 °C (–4 to 140 °F)
Atmospheric pressure	100 hPa to 1100 hPa
Relative humidity	0 to 90 % (no condensation)

Performance data

Heater output

Distance between heater and mattress, in cm	Average irradiance at level 5, in mW/cm ²	Average irradiance at level 10, in mW/cm ²
80	9	20
70	10	23
60	14	29

NOTE: The recommended distance for the RH 600 is 70 cm. All device are factory installed at 70 cm. See detailed information about the heater output in the following diagram.




NOTE: The displayed irradiance levels are average irradiance over the mattress area. The recommended distance between radiant heater and mattress is 70 cm.

Technical Data

Examination light	halogen, 12 V/35 W	
Timer	0 to 99 Minutes, 59 seconds	
	start, stop in seconds	
	reset function	
	audible alarm at	1 minute
		5 minutes
		10 minutes

Electrical safety

Standard	IEC 601-1, CSA 601-1 General electrical safety of medical devices	
	IEC 601-2-21 Safety of Infant Radiant Warmers	
Protection class (IEC)	I	
Classification	1 type B 	

Skin temperature measurement

Sensor	Use only original Dräger sensors (see "Ordering Information", page 37)	
Measurement range	33 °C to 38 °C	
Accuracy	±0.1 °C	
Accuracy of entire measurement system	±0.2 °C	

Electromagnetic compatibility	We hereby certify that this device is interference-suppressed in conformity with EN 55011 and EN 55014 and conforms to the interference immunity standard laid down in Directive 89/336/EEC.	
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Operational Data

Voltage	120 V, 50/60 Hz	(other voltages available)
Power consumption	735 W	(total)
	4 x 165 W	for heating
	35 W	for lighting
	40 W	for control
Fuses	M 6.3 A DIN 41571 (2x)	

Dimensions (mm)



Weight (without mounting bracket)	7 kg (15.5.lbs)
-----------------------------------	-----------------

Name and Description	Order No.
<p>Infant Radiant Warmer 600 W USA, on mobile stand, 120 V 50/60Hz</p> <p>Both skin temperature control and manual setting of heater output</p> <p>Including halogen examination light, timer, skin temperature measurement</p>	2M 20 539
<p>Infant Radiant Warmer 600 W, as above but without mobile stand</p>	2M 20 116
<p>Mounting kit, necessary for wall mounting</p>	2M 20 540
Accessories	
Oxygen flow meter 15 L	2M 85 661
Oxygen flow meter 16 L	2M 85 503
Oxygen flow meter 30 L	2M 85 662
Oxygen flow meter 32 L	2M 85 506
Air flow meter 15 L	2M 85 663
Air flow meter 16 L	2M 85 515
Air flow meter 30 L	2M 85 664
Air flow meter 32 L	2M 85 516
Bronchus aspirator –0.9 bar	2M 85 040
Bronchus aspirator –0.5 bar	2M 85 045
Spare Parts and Consumables	
<p>Skin temperature sensor incl. adhesive rings (pack of 250)</p>	82 00 757
Adhesive ring (pack of 250)	68 50 021
<p>Single use skin temperature sensors, set of 20</p>	2M 20 737
<p>Adapter cable, required for use with disposable temperature sensors</p>	2M 20 736
Halogen bulb 12 V, 35 W	18 33 537

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These Instructions for Use apply only to
Infant Radiant Warmer 600 W
with Serial No.:

If no Serial No. has been filled in by Dräger
these Instructions for Use are provided for
general information only and are not
intended for use with any specific
machine or device.

Manufactured by

Dräger Medizintechnik GmbH

Germany

🏠 Moislinger Allee 53 – 55
D-23542 Lübeck

☎ +49 451 8 82 - 0

📠 26 80 70

FAX +49 451 8 82-20 80

💻 <http://www.draeger.com>

Distributed by

Dräger Medical, Inc.

🏠 3136 Quarry Road
Telford, PA 18969

☎ 215-721-6910

FAX 215-721-6915

90 28 476 - GA 6134.100 en US

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3rd edition - August 2000

Subject to alteration